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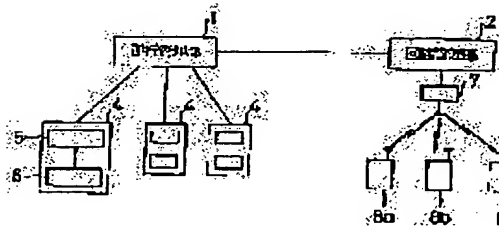
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## (54) MOBILE COMMUNICATION SYSTEM

(57)Abstract:

PURPOSE: To attain information communication between the service managing part of a traffic machine and the channel managing part of a radio channel by controlling the radio channel which a mobile radio terminal utilizes on the basis of the position information of the mobile radio terminal capable of receiving digital information.

CONSTITUTION: At the time of the movement of the traffic machine 4, a control signal is issued from an operation control part 5 to a driving part 6, and the driving part 6 has power, and drives the traffic machine 4. The service managing part 1 grasps the moving state of each traffic machine 4 existing in one or plural number, and gives the command of operation to the operation control part 5. Besides, the channel managing part 2 is connected to a base station 7, and manages the radio channel between the base station 7 and the radio terminal 8. The service managing part 1 and the channel managing part 2 communicate the



service management information of the traffic machine 4 and the channel management information of radio communication mutually through an information transmission channel. Thus, the traffic machine 4 and the radio terminal 8 can execute cooperative operation with each other.

## CLAIMS

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### [Claim(s)]

[Claim 1] Migration communication system characterized by controlling the wireless circuit which said mobile radio terminal uses based on the positional information or location fluctuation information on a mobile radio terminal that digital information is receivable at least.

[Claim 2] Migration communication system which has a means of signal transduction between this operation Management Department and this line control section in the migration communication system constituted including the operation Management Department which performs grasp or control of a traffic machine of operation, and the line control section which manages the wireless circuit in mobile communication.

[Claim 3] In the migration communication system constituted including the means of signal transduction between the operation Management Department which performs grasp or control of a traffic machine of operation, the line control section which manages the wireless circuit in mobile communication, and this operation Management Department and this line control section, and a base transceiver station Migration communication system characterized by traffic machine utilization prediction information being transmitted by the above-mentioned operation Management Department from this base station when it is predicted that the user of mobile communication uses a traffic machine in a short time from the information on this base station.

[Claim 4] Migration communication system characterized by there being time amount which does not perform location registration to at least one or more mobiles which prepared the non-location registration area which consists of at least one or more wireless zones in the migration communication system which provides two or more mobiles with communication service, and which consists of two or more wireless zones, and entered in this non-location registration area.

[Claim 5] Migration communication system characterized by calling this mobile in at least one or more wireless zones included in non-location registration area when calling a mobile, and this mobile is called and connection goes wrong in this wireless zone in migration communication system according to claim 4 in at least one or more wireless zones included in the location registration area where this mobile is registered.

[Claim 6] The migration communication system carry out carrying out the migration communications control of a migration place before predict migration of the mobile-communication user in a traffic machine from the migration situation of a traffic machine and a user's moving in the migration communication system constituted including the means of signal transduction between the operation Management Department which performs grasp or control of a traffic machine of operation, the line control section which manages the wireless circuit in mobile communication, and this operation Management Department and this line control section as the description.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to migration communication system including operation management of a traffic machine.

[0002]

[Description of the Prior Art] Drawing 25 is the block diagram showing the conventional migration communication system. In drawing 25, it is the mechanical component of a traffic machine which

drives the operation Management Department where 1 operates a traffic machine, the traffic machine with which, as for 4, the operation is managed by 1, and 5 by the operation control section of a traffic machine, and drives 6 by the control section of 5. The base transceiver station where 2 makes the line control section of a wireless circuit, and 7 makes connection of the migration terminal of 8 and a wireless circuit, and 8 are wireless terminal units. In the case of the conventional train traffic control system and migration communication system, an information-transmission way was not prepared between the operation Management Department of 1, and the line control section of 2, but operation of a traffic machine and employment of migration communication system were made independently, controlled the traffic machine by the operation Management Department of 1 only from the information about operation, and were controlling migration communication system by the line control section of 2 only from the condition of migration communication system.

[0003] Furthermore, drawing 26 is another block diagram showing the conventional building internal transmigration communication system. In drawing 21, a base transceiver station [ in / 2, and / in 7B-7D / each story ], the wireless zone where 91B-91D are constituted by this base transceiver station, and 37 are databases with which the hoistway of an elevator and 211 memorize the floor of each story, and 9 memorizes a mobile communication user's location. [ the line control section of migration communication system ] In the case of the conventional migration communication system, the configuration of a wireless zone makes each field a unit, and when a user moves from a story, a wireless circuit is reconnected between the base transceiver stations of each story each time. Moreover, registration of the location of the migration terminal 8 in a database 9 or the mobile communication user 11 was performed considering the existence story as a unit, and registration in an elevator was not carried out.

[0004] On the other hand, in order to cope with the increment in the number of subscribers in migration communication system, such as a land mobile radiotelephone and a cellular phone, in recent years, into the service area, two or more base stations are arranged and the approach of using the same frequency in the shortest base stations in which the repeat of a frequency is possible is used. In this migration communication system, by making small magnitude of the wireless zone which one base station forms, it becomes possible to use a radio frequency band more efficiently, and many subscribers can be held more.

[0005] The location registration method and call method in such migration communication system are explained using the block diagram of drawing 21 (A). If location registration of a mobile is performed every wireless zone 1101, the traffic of location registration will become huge with migration between the wireless zones 1101 of a mobile. Therefore, in case the traffic for the call of a mobile makes two or more wireless zones collectively one location registration area 1010 and calls this mobile to extent which seldom increases, the location registration method and call method which are called in all the wireless zones 1101 in the location registration area 1010 are used. In this method, in case a mobile comes out of the location registration area registered, it performs location registration and is registered into new location registration area.

[0006]

[Problem(s) to be Solved by the Invention] In the conventional migration communication system explained by drawing 25 and drawing 26 Since it was applied completely independently of the traffic machine as mentioned above, new allocation of the wireless circuit for a communication link with the migration communication terminal 8 in a base transceiver station 7 is performed when a migration terminal goes into the wireless zone of this base station. When the wireless circuit was insufficient for new allocation at this time, even if it was under message, forced release of the message had to be carried out, and the technical problem that the problem of the service fall by such

forced release was large occurred.

[0007] moreover, with the wireless zone configuration in the conventional migration communication system explained by drawing 25 and drawing 26 When a terminal is in the traffic machine which the wireless zone is constituted for every story and moves in the vertical direction like an elevator at a high speed Since the wireless zone of each story would be crossed at high speed, the control signal generated [ changing ] the wireless zone the degree of capital by the circuit hand off under message, the controlled variable increased, and the technical problem of control not meeting the deadline occurred.

[0008] Moreover, in the conventional location registration method and conventional call method which were explained using drawing 21 A, when the migration communication system which held and made very many mobiles personal is considered, there is a problem that the traffic for location registration and a call becomes huge.

[0009] Since it is necessary to perform location registration even when there is no call in this mobile if many mobiles advance into specific location registration area especially for a short time, the problem that location registration traffic becomes huge arises. Moreover, when a mobile stops at one location registration area over long duration and there is a call to the mobile frequently, the trouble that call traffic increases arises.

[0010] It was made in order that invention of claims 1 and 2 might solve the above technical problems, and it aims at really [ the ] aiming at employment in the migration communication terminal interlocked with a traffic machine.

[0011] Invention of claim 3 aims at mitigating a user's control input and employment of few traffic machines of the latency time being made by transmitting a user's migration prediction information grasped by the migration communication line Management Department to the operation Management Department of a traffic machine.

[0012] Invention of claim 4 and claim 5 solves the trouble in a location registration method and a call method which were mentioned above, and aims at decreasing all the traffic required for location registration and a call. Invention of claim 6 aims at controlling the wireless circuit predicted from a motion of a traffic machine, when the user of mobile communication uses a traffic machine.

[0013]

[Means for Solving the Problem] Migration communication system of the 1st invention concerning claim 1 is characterized by controlling the wireless circuit which said mobile radio terminal uses based on the positional information or location fluctuation information on a mobile radio terminal that digital information is receivable at least.

[0014] The migration communication system of the 1st invention concerning claim 2 establishes the means of signal transduction by radio or the wire communication between the operation Management Department which performs grasp or control of a traffic machine of operation, and the line control section which manages the wireless circuit in mobile communication, and enables the transfer of traffic machine operation management information and wireless line control information to mutual.

[0015] The migration communication system of the 1st invention concerning claim 3 establishes the means of signal transduction by radio or the wire communication between the operation Management Department of a traffic machine, the line control section which manages the wireless circuit in mobile communication, and \*\*, and supervises a motion of a mobile-communication user in the above-mentioned line control section, and when it is predicted that a mobile-communication user uses a traffic machine, it makes transmit use prediction information to the above-mentioned operation Management Department from the above-mentioned line control section.

[0016] The migration communication system of the 1st invention concerning invention of claim 6

establishes the means of signal transduction by radio or the wire communication between the operation Management Department of a traffic machine, the line control section which manages the wireless circuit in mobile communication, and \*\*, and has the function in which prediction of migration of the mobile communication user under entrainment to a traffic machine performs line control from the operation prediction information on a traffic machine.

[0017] And in the migration communication system to which the migration communication system of the 1st invention of claim 1, claim 2, or claim 5 is applied, a system can be built as follows.

[0018] That is, the migration communication system of the 1st application of the 1st invention corresponding to claim 1 or claim 2 establishes the means of signal transduction by radio or the wire communication between the operation Management Department which performs group control of an elevator, the line control section which manages the wireless circuit in mobile communication, and \*\*, and supervises a motion of a mobile communication user in the above-mentioned line control section, and it is made transmit the information to the above-mentioned operation Management Department from the above-mentioned line control section.

[0019] The line control section in which the migration communication system of the 2nd application manages the operation Management Department of a traffic machine, and the wireless circuit in mobile communication, [ whether it is predicted that establish the means of signal transduction by radio or the wire communication between \*\*, and a wireless circuit carries out convergence in a base transceiver station, and ] When convergence is carried out, or by transmitting the convergence information to the operation Management Department of the above-mentioned traffic machine from the above-mentioned base transceiver station Only through the wireless zone where convergence has not occurred, the course of the traffic machine which is due to pass through the wireless zone of the base station where convergence of a wireless circuit happens is changed into a course without wireless circuit convergence, when it can bypass.

[0020] The migration communication system of the 3rd application establishes the means of signal transduction by radio or the wire communication between the operation Management Department of a traffic machine, the line control section which manages the wireless circuit in mobile communication, and \*\*, and has the function in which prediction of migration of the mobile communication user under entrainment to a traffic machine performs line control from the operation prediction information on a traffic machine.

[0021] With the operation Management Department which the migration communication system of the 4th application gives group control of an elevator The means of signal transduction by radio or the wire communication is established between the line control section which manages the wireless circuit in mobile communication, and \*\*. It enables it to assign the wireless circuit for the mobile communication user who used the cage before arrival of the cage in the halt story by transmitting the halt story information in the cage of the elevator grasped at the above-mentioned operation Management Department to the above-mentioned line control section.

[0022] The migration communication system of the 5th application calls both a calling party and a call-in person through a base transceiver station from the line control section, after cutting a circuit temporarily and attaining circuit allocation, when allocation of a circuit is not completed.

[0023] With the operation Management Department which the migration communication system of the 6th application gives group control of an elevator The means of signal transduction by radio or the wire communication is established between the line control sections which manage the wireless circuit in mobile communication. It has the function which can disseminate the demand information on a destination story in the migration communication terminal by which a line connection is carried out through a base transceiver station from the line control section, and the demand information is made to be transmitted to the above-mentioned operation Management

Department and the above-mentioned line control section through a base transceiver station.

[0024] In order for the migration communication system of the 7th application to establish the base station for performing radio in a building in each story and to secure the continued message in an elevator, when the base station for elevators is prepared in the hoistway of an elevator and one elevator is located in every location, the communication link of the migration communication terminal in an elevator is surely secured by one set of a certain base station.

[0025] It is made for the migration communication system of the 8th application to distribute concentration of the traffic for positional information rewriting by the ability shifting before and after the timing which crosses the location registration area boundary judged by received field strength comparison in the renewal demand of location registration which a migration communication terminal transmits to a base transceiver station.

[0026] The migration communication system of the 9th application carries out location registration area of this user in a positional information database only into this traffic machine, when it is constituted by the base transceiver station which makes the inside of a traffic machine the wireless zone, the management equipment of a wireless circuit, and the database which records the positional information of the user of mobile communication linked to this management equipment and a mobile communication user exists in a traffic machine.

[0027] The migration communication system of the 10th application makes location registration area of the mobile communication user in a location registration database only the service story of the taken elevator, when it is constituted by the database which records the positional information of the user of mobile communication who connects with the management equipment of a radio circuit at it into a building with two or more elevators in which service stories differ and a mobile communication user uses an elevator.

[0028] Migration communication system of the 2nd invention concerning claim 3 is characterized by preparing the non-location registration area which does not perform location registration even if a mobile advances and which consists of at least one or more wireless zones in the migration communication system which provides two or more mobiles with communication service and which consists of two or more wireless zones.

[0029] The migration communication system of the 2nd invention concerning claim 4 In the migration communication system which provides two or more mobiles with communication service using the method of claim 3 and which consists of two or more wireless zones In at least one or more wireless zones included in the location registration area where this mobile is registered in case a mobile is called When this mobile is called and connection goes wrong in this wireless zone, in at least one or more wireless zones included in non-location registration area, it is characterized by calling this mobile.

[0030] And in the migration communication system of the 2nd invention to which the migration communication system of claim 3 or claim 4 is applied, a system can be built as follows. Namely, the migration communication system of the 1st application of the 2nd invention corresponding to claim 3 or claim 4 In the migration communication system which provides two or more mobiles with communication service and which consists of two or more wireless zones It is characterized by changing the paging area which consists of at least one or more wireless zones at the time of [ the ] receiving the mobile which does not perform location registration beyond fixed time amount into the short-range paging area which consists of a small number of wireless zones more.

[0031] It is characterized by the migration communication system of the 2nd application changing the paging area in the time into the second short-range paging area which consists of a small number of wireless zones more in the location registration method of the 1st application of the above, when the mobile whose paging area is the first short-range paging area does not change

paging area beyond fixed time amount.

[0032] In the migration communication system with which the migration communication system of the 3rd application consists of two or more wireless zones which provide two or more mobiles with communication service using the location registration method of the 1st and 2nd applications of the above. In at least one or more wireless zones included in the short-range paging area where this mobile is registered in case the mobile whose paging area is short-range paging area is called It is characterized by calling this mobile, and calling this mobile in this wireless zone, in at least one or more wireless zones which are not included in this short-range paging area, when connection goes wrong.

[0033]

[Function] The means of signal transduction in the 1st invention of claim 1 makes it possible to perform the information communication link between the operation Management Department of a traffic machine, and the line control section of a wireless circuit. The line control section in the 1st invention of claim 2 judges whether it is predicted that the mobile communication user who carries this migration communication terminal uses a traffic machine from the positional information of the migration communication terminal connected to the base station through the wireless circuit, and when predicted, it realizes the function which notifies the operation Management Department of that automatically.

[0034] The line control section in the 1st invention of claim 5 receives the operation information on a traffic machine through an information-transmission way from the operation Management Department of a traffic machine, and realizes the function which controls the wireless circuit in the migration place the migration communication terminal which the mobile communication user using a traffic machine carries is predicted to be before arrival of a traffic machine.

[0035] And the line control section in the 1st application of the 1st invention corresponding to claim 1, claim 2, or claim 5 From the positional information of the migration communication terminal connected to the base station through the wireless circuit It judges whether it is predicted that the mobile communication user who carries this migration communication terminal uses an elevator. Notifying the operation Management Department of that as a cage call of an elevator, when predicted, the operation Management Department of an elevator has the function to perform group control of an elevator from the received prediction cage call information, and realizes these coordination actuation.

[0036] The line control section in the 2nd application predicts or detects generating of convergence of a wireless circuit from the circuit utilization factor of a base station. When convergence is predicted or detected, the location of the base transceiver station which convergence produced by the communication link of wireless or a cable is transmitted to the operation management equipment of a traffic machine. The operation management equipment of a traffic machine Control which changes into a detour course the course of the traffic machine which is due to pass through the wireless zone of the base transceiver station where convergence occurred only through a wireless zone without convergence when it can bypass is realized.

[0037] The line control section in the 3rd application receives the operation information on a traffic machine through an information-transmission way from the operation Management Department of a traffic machine, and realizes the function which controls the wireless circuit in the migration place the migration communication terminal which the mobile communication user using a traffic machine carries is predicted to be before arrival of a traffic machine.

[0038] The line control section in the 4th application receives the halt story information on the cage transmitted to the operation Management Department of an elevator from the inside of the cage of an elevator through the information-transmission way which connects between the line control



section and the operation Management Department of an elevator, and before a mobile-communication user gets off from a cage in allocation of the wireless circuit for connection with the terminal which the mobile-communication user in a cage carries, it realizes it in the base transceiver station of the halt story of a cage.

[0039] The line control section in the 5th application once cuts a circuit, when the wireless circuit of the base station a mobile communication user's alighting story is not able to connect by convergence in an operation of invention of claim 6, and it realizes the function to which the wireless circuit of a base station became connectable and which calls a calling party and a call-in person in Ushiro automatic, and connects a circuit.

[0040] Destination story demand of an elevator and allocation of the wireless circuit in the destination story are realized by one actuation of a mobile-communication user by the base transceiver station in the 6th application receiving the destination story demand signal sent from the migration communication terminal which an elevator user carries, transmitting it to the operation Management Department of an elevator, and the wireless line control section through a transmission line, and assigning the wireless circuit in a mobile communication user's destination story beforehand in the line control section.

[0041] The migration communication system in the 7th application connects a communication line by the base transceiver station and radio in each story, when a migration communication terminal exists in each [ in a building ] story. By connecting a communication line by the base transceiver station prepared in the hoistway of the elevator when a migration communication terminal existed in an elevator, and the wireless circuit The communication mode which can secure the communication link quality which there are few control signals by the hand off of a communication line, and was stabilized also [ in the elevator where it moves at high speed ] is offered.

[0042] When it is judged that the migration communication terminal in the 8th application measured the reinforcement of the received electric wave from a surrounding base station at the time of the waiting receptacle for reception, and approached the boundary of location registration area By the ability shifting at random the time of day which transmits the updating demand information on location registration area to the base transceiver station which carries out a \*\* area at the order when actually crossing a boundary It realizes distributing concentration of the location registration traffic generated in order that two or more migration communication terminals which approach, and synchronize and move by the reason of existing in a traffic machine may cross a location registration area boundary between short time.

[0043] The line control section which manages the wireless circuit in the 9th application When there is a base transceiver station which makes the inside of a traffic machine a wireless zone and a migration communication terminal exists in the traffic machine By making location registration area of a migration communication terminal only into the inside of a traffic machine When the traffic machine moved quickly, or when a traffic machine moves a contiguity wireless zone to a distant wireless zone like an elevator, without passing one after another, it realizes decreasing the rewriting frequency of the positional information database which records a migration communication terminal's existence location.

[0044] The line control section which manages the wireless circuit in the 10th application When the elevator in which the user of mobile communication had the service story limited within a building is used Limit the location registration area of the migration communication terminal which the user carries within the limits of the service story of an elevator, and it is recorded on a positional information database. By losing the call traffic in the story to which a terminal does not exist at the time of the call of a terminal, mitigation of the call traffic volume in the whole building is realized.

[0045] According to the migration communication system of the 2nd invention of claim 3 or claim 4,



the location registration area where the mobile is registered, and non-location registration area are compared with the approach of making it into the same location registration area. As compared with the approach of making location registration area where it becomes possible to decrease call traffic, and the mobile is registered, and non-location registration area respectively different location registration area, it becomes possible to decrease location registration traffic.

[0046] Moreover, when a mobile stops at one location registration area over long duration, there is a call to this mobile frequently, and a mobile comes out of the location registration area registered at the time, as compared with the approach of performing location registration, it becomes possible to decrease the call traffic to this mobile.

[0047]

[Example]

One example of the 1st invention of claim 1 is shown in example 1. drawing 1 , and it explains to it. In drawing 1 the operation Management Department of a traffic machine and 2 1 The line control section of mobile communication, An information-transmission way for 3 to perform the information transmission between 1 and 2, the possible traffic machine of 4 moving, A base transceiver station with the function of a strange recovery for a mechanical component with power for 5 to move the operation control section of a traffic machine, and for 6 move a traffic machine and 7 to communicate with a wireless terminal and 8 are migration communication terminals which communicate using 7 and a wireless circuit.

[0048] Next, actuation is explained. In the case of the migration, a control signal is taken out from the operation control section 5 to a mechanical component 6, and, as for the traffic machine 4, a mechanical component 6 drives the traffic machine 4 with power. To each of one set or the traffic machine 4 whose two or more sets exist, the operation Management Department 1 grasps the migration situation, and gives the command of operation to the operation control section 5. Moreover, it connects with the base station 7 and the line control section 2 manages the wireless circuit between a base station 7 and the wireless terminal 8. When the operation Management Department 1 and the line control section 2 communicate the operation management information of a traffic machine, and the line control information on radio mutually through the information-transmission way 3 and a radio terminal exists in the traffic machine 4 by this, it becomes possible to perform actuation which cooperated mutually.

[0049] One example of the 1st invention of claim 2 is shown in example 2. drawing 2 , and it explains to it. In drawing 2 the operation Management Department of a traffic machine and 2 1 The line control section of mobile communication, An information-transmission way for 3 to perform the information transmission between 1 and 2, the possible traffic machine of 4 moving, A mechanical component with power for 5 to move the operation control section of a traffic machine, and for 6 move a traffic machine, As for a base transceiver station with the function of a strange recovery of \*\*\*\* in which 7A communicates with a wireless terminal, the base transceiver station where 7B exists in the bus stop of a traffic machine, the wireless terminal unit with which 8 communicates using 7 and a wireless circuit, and 11, a mobile communication user and 12 are the bus stops of a traffic machine.

[0050] Next, actuation is explained. When a mobile communication user with the migration terminal of 8 goes to the traffic machine bus stop 12, the migration communication terminal 8 is communicating with base transceiver station 7A at first, but when a bus stop is approached, a hand off is carried out to base transceiver station 7B. It transmits that the mobile communication user 11 moved to base transceiver station 7B in line control equipment 2 to traffic machine operation management equipment 1 through the information-transmission way 3, and with operation management equipment 1, it is regarded as what had [ that the user 11 arrived at the bus stop,

and ] the demand of traffic machine utilization, a service command signal is transmitted to the operation control section 5, and the traffic machine 4 is served to a user 1 using a mechanical component 6. A traffic machine is able to give its service automatically, without the mobile communication user 1 advancing the demand of traffic machine utilization by this.

[0051] One example of the 1st application of the 1st invention corresponding to claim 1, claim 2, or claim 5 is shown in example 3. drawing 3 , and it explains to it. In drawing 3 the operation Management Department of an elevator and 2 31 The line control section of mobile communication, An information-transmission way for 3 to perform the information transmission between 31 and 2, the base transceiver station where 7B makes a wireless zone the elevator hall 35 for a \*\* people monitor, For the wireless terminal unit which communicates by 7A's using the base transceiver station of each story other than a hole, and 8 using 7 and a wireless circuit, and 11, as for the operation control section of an elevator, and 33, a mobile communication user and 32 are [ the loop wheel machine of an elevator and 34 ] the cages of an elevator.

[0052] Next, actuation is explained. When the mobile communication user who carries the migration terminal of 8 moves to a hole 35, the migration communication terminal 8 is communicating with base transceiver station 7A at first, but when the mobile communication user 11 moves to an elevator hall 35, a hand off is carried out to base transceiver station 7B. When the mobile communication user 11 moves to 7B from 7A in line control equipment 2, a signal and mobile communication user's 11 who show migration existence story is transmitted to elevator operation management equipment 31 through the information-transmission way 3, with operation management equipment 31, it considers that receipt information is the cage call of an elevator, a loop wheel machine 33 is operated through the operation control section 32, and a cage 34 is served for a mobile communication user's 11 existence story. Furthermore, when line control equipment 2 regards it as the waiting for a cage only about the mobile communication user who moved to 7B from base station 7A and the mobile communication user who moved conversely regards it as the person who got off from the cage, the man of the waiting for a cage and the person whose cage got off are distinguished, and what is transmitted to the operation Management Department 31 as a cage call only about the man of the waiting for a cage is performed.

[0053] One example of the 2nd application of the 1st invention is shown in example 4. drawing 4 and drawing 5 , and it explains to them. In drawing 4 the operation Management Department of a traffic machine and 2 1 The line control section of mobile communication, The information-transmission way of \*\*\*\* where 3 performs the information transmission between 1 and 2, the possible traffic machine of 4 moving to two-dimensional, A mechanical component with power for 5 to move the operation control section of a traffic machine, and for 6 move a traffic machine, The base transceiver station which the traffic machine began 7A and is carrying out the \*\* area, the base transceiver station which 7C has in the destination of a traffic machine, The base transceiver station which 7B has on the course of an intermediate traffic machine, and 8 are wireless zones where the mobile communication user under entrainment to the traffic machine 4 builds a migration communication terminal and 11, and base stations 7A-7C build 41A-41C, respectively. Next, in development view drawing 5 on a flat surface, the wireless zone which the traffic machine began 51A and is carrying out the \*\* area, the wireless zone on the course on which the traffic machine 4 planned 51B, and 51C are the wireless zones of the destination of the traffic machine 4. 51 A-C corresponds to 41 A-C of drawing 4 , respectively. The course on which the traffic machine 4 was planning 52A first, and 52B and 52C are detour courses. Here, suppose that convergence of a wireless circuit has occurred in wireless zone 41B (51B).

[0054] Next, actuation is explained. The traffic machine 4 operates with the power of the mechanical component 6 controlled by the operation control section 5 based on the operation

command transmitted to the operation control section 5 from the operation Management Department 1. The base transceiver station 7 does not grasp the information on base transceiver stations other than itself, although it has the function to connect a wireless circuit with the migration communication terminal 8. Base transceiver station 7B will transmit the information to the line control section 2, if a wireless circuit is used to the limit of circuit capacity and detects convergence. The line control section 2 always grasps whether convergence of a wireless circuit occurred in which base station, and transmits the number which distinguishes base station 7B in which convergence occurred to the operation Management Department 1 through the information-transmission way 3. The operation Management Department 1 orders so that the traffic machine 4 may pass wireless zone 51B in which convergence occurred, the mobile communication user's 11 line of contact may not cut, and 52B of drawing 5 or 52C which is a detour course may be taken to the traffic machine operation control section 5. However, for the reasons nil why a detour course is long when a detour course without convergence cannot be taken etc., when other service conditions of a traffic machine cannot be fulfilled, this command is not performed. When the traffic machine 4 goes only via a wireless zone without convergence by this, it enables a mobile communication user to continue the good message without forced release.

[0055] Example 5. drawing 6 is another example of the 2nd application of the 1st invention. This is the case where the operation control section 5 and mechanical component 6 of a traffic machine are being fixed to the location besides a traffic machine, and from a mechanical component 6, through migration equipment 61, the traffic machine 4 receives power and moves. Also in this case, effectiveness equivalent to the above-mentioned example 4 is expectable.

[0056] One example of the 3rd application of the 1st invention of claim 5 is shown in example 6. drawing 7, and it explains to it. In drawing 7 the operation Management Department of a traffic machine and 2 1 The line control section of mobile communication, An information-transmission way for 3 to perform the information transmission between 1 and 2, the traffic machine with which, as for 4, the course is grasped or directed by the operation Management Department of 1, The wireless zone where a base transceiver station and 51 A-D are built for 7A-7D by the base transceiver station of 7A/7D, respectively, the mobile communication user who is in the traffic machine 4 as for 11, and 72 are the courses with which the traffic machine 4 was planned.

[0057] Next, actuation is explained. The operation Management Department 1 transmits the course information 72 on the traffic machine 4 to the line control section 2 through the information-transmission way 3. The mobile communication user 11 who is communicating with base station 7D controls the mobile communication user's 11 wireless circuit by the line control section beforehand to base transceiver station 7B of the front judged from the course 72 of the traffic machine 4, while the traffic machine 4 is in wireless zone 7A, since it is judged that it is in the traffic machine 4.

[0058] Another example of the 3rd application of the 1st invention is shown in example 7. drawing 8. Drawing 8 distributes the wireless line control section and an information-transmission way for every base transceiver station like 2A - 2D, and 3A - 3D, respectively. Other drawing 7 and the thing of a jack per line have the same configuration.

[0059] Next, actuation is explained. It is transmitted to the line control sections 2A-2C distributed for every wireless zone in the course information on the traffic machine from the operation Management Department 1, and the line control sections 2A-2C control only base stations 7A-7C, respectively. Other actuation is the same as that of an example 6.

[0060] One example of the 4th application of the 1st invention is shown in example 8. drawing 9, and it explains to it. In drawing 9 the operation Management Department of an elevator and 2 31 The line control section of mobile communication, An information-transmission way for 3 to perform

the information transmission between 31 and 2, the base transceiver station where 7A sets the inside of the hoistway 37 of an elevator to wireless zone 91A, The base transceiver station for every story where 7B and 7C make 91B and 91C a wireless zone, respectively, The wireless terminal unit with which 8 communicates using 7 and a wireless circuit, the positional information database with which 9 memorizes the positional information of the wireless terminal 8 or the mobile communication user 11, 11 -- for the loop wheel machine of an elevator, and 34, as for the halt story registration equipment in a cage, and 37, the cage of an elevator and 36 are [ a mobile communication user and 32 / the operation control section of an elevator, and 33 / the hoistway of a cage and 92 ] the mobile communication user's 11 arrival stories.

[0061] Next, actuation is explained. Although the information will be transmitted to operation management equipment 31 and migration of a cage will be performed by the operation control section 32 and the loop wheel machine 33 according to the command from operation management equipment 31 if the mobile communication user 11 takes an elevator and registers a destination story into halt story registration equipment 36 with button grabbing or the wireless terminal 8 in a cage, in parallel to it, destination story information is transmitted to the line control section 2 through the information-transmission way 3. The line control section 2 recognizes that the radio terminal 8 exists in a cage from the circuit information on base transceiver station 7A in a cage, and using the halt story information on the cage transmitted from operation management equipment 31, before a cage actually reaches the arrival story 92 and the radio terminal 8 carries out the hand off of allocation of the wireless circuit for the mobile communication user 11 in the arrival story 92, and the rewriting of the positional information database 9 to wireless zone 91C, it performs them.

[0062] One example of the 5th application of the example 9. 1st invention is explained using drawing 9 . In an example 8, the line control section 2 by convergence of the wireless circuit in base transceiver station 7C of the arrival story 92 By the time the mobile communication user 11 gets off to the floor of the arrival story 92, when reservation allocation of a wireless circuit cannot be performed, The terminal of the both ends which memorized the number of circuit both ends, without making connection of the migration communication terminal 8 and base transceiver station 7C until convergence of the wireless circuit in base transceiver station 7C was completed, and had been memorized after convergence termination is called automatically, and a line connection is performed.

[0063] One example of the 6th application of the 1st invention is shown in example 10. drawing 10 , and it explains to it. In drawing 10 (a) the operation Management Department of an elevator and 2 31 The line control section of mobile communication, An information-transmission way for 3 to perform the information transmission between 31 and 2 and 7A are prepared in the hoistway 37 of an elevator. The base transceiver station which makes the inside of a hoistway a wireless zone, the base transceiver station where 7C makes the arrival story 92 of a cage a wireless zone, 8 has the function to perform mobile communication, such as the function and telephone whose user can input the destination story of a cage, and data communication. The migration communication terminal which communicates by 7A and the wireless circuit, the positional information database with which 9 memorizes the positional information of the migration communication terminal 8 or the mobile communication user 11, For the operation control section of an elevator, and 33, as for the cage of an elevator, and 37, the loop wheel machine of an elevator and 34 are [ 11 / a mobile communication user and 32 / the hoistway of a cage and 92 ] the mobile communication user's 11 arrival stories.

[0064] Next, actuation is explained. If the mobile communication user 11 carries the migration communication terminal 8 and takes a cage 34, a use destination story will be inputted into the migration communication terminal 8. Destination story information is transmitted to base

transceiver station 7A from the migration communication terminal 8, and destination story information is transmitted to the operation Management Department 31 and the line control section 2 from base transceiver station 7A. At the operation Management Department 31, actuation of making the arrival story 92 suspending a cage according to destination story information is performed. On the other hand, when a mobile communication user performs continued radio, such as a message, as one actuation using the radio terminal 8 within a cage 34, the line control section 2 performs reservation of the wireless circuit for the mobile communication user 11 to it, before the mobile communication user 11 reaches base transceiver station 7C in the floor of the mobile communication user's 11 arrival story 92 on the arrival story 92. When the mobile communication user 11 gets down to the arrival story 92, base transceiver station 7C connects the reserved wireless circuit. The reservation number of circuit demanded from the line control section is made less than into the number of the migration communication terminals 8 in the cage which performed the destination story registration demand on the arrival story 92. Moreover, another actuation of the line control section 2 rewrites the positional information of a user's location registration database 9 to the thing containing the arrival story 92 and a cage 34, when the mobile communication user 11 does not perform continued radio by the migration communication terminal 8 carried during the entrainment to a cage 34.

[0065] As shown in drawing 10 (b), the 6th application of the example 11. 1st invention is possible when the same actuation as an example 8 is performed for the mobile communication user 11 through base station 7B of the entrainment story 93 in the entrainment story 93 of a cage in an example 8.

[0066] The 6th application of the example 12. 1st invention is available, when it does not fix in a hoistway, but it installs the base transceiver station which serves the inside of a cage 34 in a cage 34 in an example 8 and same actuation is performed, as shown in drawing 10 (c).

[0067] The 6th application of the example 13. 1st invention is available also about the case where base transceiver station 7A was divided into the object for the operation Management Department 31, and the line control sections 2, and is prepared in an example 8, an example 9, or an example 10 as shown in drawing 11 .

[0068] One example of the 7th application of the 1st invention is shown in example 14. drawing 12 , and it explains to it. In drawing 12 , the radio terminal with which the user of the mobile communication under entrainment in the cage 34 of an elevator carries the base transceiver station where the line control section of mobile communication and 7A are installed for 2 in the hoistway 37 of an elevator, the base transceiver station where 7B-7D are installed in each story floor 121, and 11, and a mobile communication user carries 8, and 91A-91D are wireless zones constituted by base transceiver stations 7A-7D, respectively.

[0069] Next, actuation is explained. When there is the mobile communication user 11 in a cage 34, the migration communication terminal 8 which the mobile communication user 11 carries exists in wireless zone 91A constituted in the hoistway 37 of a cage, and performs base transceiver station 7A and radio. Since the migration communication terminal 8 always exists only in [ of one ] wireless zone 91A even if a cage 34 moves up and down, even if the migration communication terminal 8 is communicating, in base transceiver station 7A, control of the hand off by migration between wireless zones is not started. Moreover, since it does not move between wireless zones, rewriting of the mobile communication user's 11 positional information database 9 is also unnecessary. Since the control signal traffic by the hand off does not prepare a base transceiver station in a cage 34 when not generated even if a cage 34 fluctuates by this at high speed, it is not necessary to form in a hoistway a long telecommunication cable which corresponds to migration of a cage 34.

[0070] One example of the 8th application of the 1st invention is shown in example 15. drawing 13

and drawing 14 , and it explains to them. In drawing 13 , the location registration area of the migration communication terminal 136 which the location registration area of the migration communication terminal 136 where a switching node, and 132 and 133 include a base transceiver station, and, as for 134, 131 includes a base transceiver station 132, and 135 adjoin 136, and includes a base transceiver station 133, and 137 are positional information databases which memorize the positional information of the migration communication terminal 136. In drawing 14 , the location from which, as for 141 and 142, the migration communication terminal 136 advances the demand of renewal of the positional information of the migration communication terminal 136, and other numbers are the same as what is shown in drawing 13 .

[0071] Next, actuation is explained. In drawing 13 , the migration communication terminal's 136 existence area 134 is memorized by the positional information database 137, and when calling the migration communication terminal 136 from a switching node 131, only the base station in the location registration area 134 including the base transceiver station 132 near the migration communication terminal 136 is called. When migration communication terminal 136A moves and it reaches near the edge of the location registration area 134, migration communication terminal 136A transmits the renewal demand signal of location registration to a base transceiver station 133, and a switching node 131 will update the positional information of migration communication terminal 136A of the positional information database 137 in the area of 135 from the area of 134, if this renewal demand signal of location registration is received from a base transceiver station 133. After the time of day of this updating waits only for random time of day from the time of day which became below a numeric value with the received field strength in the migration communication terminal 136, it is updated. This numeric value is more highly set up a little rather than the received field strength value at the time of the hand off of a radio circuit while continuing a communication link. Therefore, as shown in drawing 14 (a), when the migration communication terminals 136A-136C move to the wireless zone 143, the location of renewal of positional information distributes to 141 A-C which they are before and behind the edge of the location registration area 144.

[0072] The example 15 of the 8th application of the example 16. 1st invention can also distribute the location of the renewal of positional information in the range which does not come out of the location registration area 134 before updating, as shown in drawing 14 (b).

[0073] One example of the 9th application of the 1st invention is shown in example 17. drawing 15 and drawing 16 , and it explains to them. In drawing 15 , the base transceiver station which the migration communication terminal to which in 2 a base transceiver station carries a traffic machine and 7, and, as for the wireless line control section and 4, the mobile communication user 11 in a traffic machine carries 8, the positional information database with which 9 memorizes the mobile communication user's 11 positional information, and 41 make the inside of the traffic machine 4 as the wireless zone of a base transceiver station 7, and 151 makes a wireless zone, and 152 are wireless zones constituted by the base transceiver station 151 in the traffic machine 4. It is the same as that of the case of drawing 15 which drawing 16 develops drawing 15 on a flat surface, and each number expresses.

[0074] Next, actuation is explained. In drawing 15 , when there is the mobile communication user 11 on the ground as a pedestrian, it communicates using the migration communication terminal 8 from the inside of the wireless zone 41. In this case, since the migration communication terminal 8 communicates with the terrestrial base station 7, the line control section 2 registers the mobile communication user's 11 location into the positional information database 9 as terrestrial area. Moreover, when there is the mobile communication user 11 in the traffic machine 4, it communicates using the migration communication terminal 8 from the inside of the wireless zone

152. In this case, since the migration communication terminal 8 communicates with the base station 151 which makes the inside of the traffic machine 4 a wireless zone, the line control section 2 registers the mobile communication user's 11 location into the positional information database 9 as inside of the traffic machine 4, and does not perform location registration to the ground. This location registration area is shown in drawing 16 (a) and drawing 16 (b). By the case where the mobile communication user 11 or the migration communication terminal 8 is registered into the traffic machine 4, drawing 16 (a) calls only the inside of the location registration area of a slash, when the line control section 2 of drawing 15 calls a terminal 8. By the case where the mobile communication user 11 or the migration communication terminal 8 is registered on the ground, drawing 16 (b) calls all the inside of the location registration area of a terrestrial slash, when the line control section 2 of drawing 15 calls a terminal 8. Although the inside of the traffic machine 4 is not contained in location registration area in drawing 16 (b), even when entering, other actuation is completely the same.

[0075] Example 18. drawing 17 is one example of invention of the 9th application of the 1st invention in case a traffic machine is an elevator in an example 17. As for the migration communication terminal to which the mobile communication user 11 carries 8, and 34, in drawing 17 (a) and (b), the cage of an elevator and 37 are the hoistways of an elevator.

[0076] Next, actuation is explained. When the mobile communication user 11 or the migration communication terminal 8 gets on in the cage 34 of an elevator, the location registration area is made only into the inside of a cage 34 like drawing 17 (a), and registration of other stories is not performed.

[0077] About the example 19. example 18, when the mobile communication user 11 or the migration communication terminal 8 gets on in the cage 34 of an elevator, some which contain some stories like drawing 17 (b) may have location registration area.

[0078] One example of the 10th application of the 1st invention is shown in example 20. drawing 12 and drawing 18 , and it explains to them. Explanation of the number of the block diagram of drawing 12 is the same as that of the thing of an example 14. In drawing 18 , 181 and 182 are the cages of an elevator and the service stories differ.

[0079] Next, actuation is explained. In drawing 12 , if the mobile communication user 11 who carries the migration communication terminal 8 takes the cage 34 of an elevator, in base transceiver station 7A, the migration communication terminal 8 and the mobile communication user 11 will sense entrainment, and will transmit the number of the cage which took the wireless line control section 2. In the line control section 2, the service story of a cage is memorized and location registration of the mobile communication user 11 or the migration communication terminal 8 is performed by making the inside of the service story of this cage, and this cage into within the limits.

[0080] Another example of the 10th application of the 1st invention is shown in example 21. drawing 19 , and it explains to it. In drawing 19 the operation Management Department of an elevator and 2 31 The wireless line control section, The information-transmission way between 31 and 2, the base transceiver station which 3 makes the inside of the hoistway of a cage 191,192 to 7A, and 7B makes a wireless zone, respectively, The database with which 7B-7G memorize the base transceiver station of each story, and 9 memorizes the positional information of a migration communication terminal or a mobile communication user, The mobile communication user who carries the migration communication terminal 8 while 11 is taking the cage 191 or cage 192 with which service stories differ, and 32 are operation control sections which control a loop wheel machine 33 according to directions of the operation Management Department 31.

[0081] Next, actuation is explained. In drawing 19 , if the mobile communication user 11 takes



cages 191 or 192 and specifies a destination story with the carbon button in a cage etc., the halt story information on each cage will be transmitted to the line control section 2 by the information-transmission way 3 from the operation Management Department 31. In the line control section 2, the location registration area of the migration communication terminal 8 in the positional information database 9 or the mobile communication user 11 is registered as this halt story in a cage from the halt story information on the cage in the wireless zone of this base transceiver station that received the location registration demand signal taken out from the migration communication terminal 8 through base transceiver stations 7A or 7B, and was received from the operation Management Department 31.

[0082] In the example 22. example 21, the location registration area of the migration communication terminal 8 in the positional information database 9 or the mobile communication user 11 is limited and registered into the destination story of the inside of a cage, and the mobile communication user 11 by transmitting the number of the information on destination story registration and the migration communication terminal 8, or the mobile communication user 11 to the line control section 2 with a location registration demand signal from the migration communication terminal 8 in the cage of drawing 19 .

[0083] Drawing 20 is the block diagram showing the configuration of the migration communication system concerning the example of the 2nd invention. The migration communication system of this example is constituted including at least one or more location registration area 1010 and at least one or more non-location registration area 1011. Location registration is performed to the mobile in the location registration area 10, and location registration is not performed to the mobile in the non-location registration area 11. As the location registration area 1010 is shown in the block diagram of drawing 21 (A), it is constituted including at least one or more wireless zones 1101, and communication service is offered to the mobile in this wireless zone 1101 by the base transceiver station 1102 which forms this wireless zone 1101. As the non-location registration area 1011 is shown in the block diagram of drawing 21 (B), it is constituted including at least one or more wireless zones 1111, and communication service is offered to the mobile in this wireless zone 1111 by the base transceiver station 1112 which forms this wireless zone 111.

[0084] Next, actuation of the location registration method in the migration communication system constituted as mentioned above is explained. The mobile by which location registration is carried out to the location registration area A10 comes out of this location registration area A10 by migration, when it advances into the wireless zone 1111 included in the non-location registration area 1011, location registration is not performed, but this mobile is location-registration-kept carried out in the location registration area A10. Thereby, it becomes possible to decrease location registration traffic.

[0085] The migration communication system concerning another example is explained. The configuration of this migration communication system is the same as the configuration of the migration communication system concerning the example of the 2nd invention of the above shown in the block diagram of drawing 20 .

[0086] Next, actuation of the location registration method in the migration communication system constituted as mentioned above is explained. Between the short time makes area where many mobiles advance between a certain short time the non-location registration area 1011. Location registration is not performed to the mobile which came out of each location registration area 1010, and advanced into the non-location registration area 1011, but it is location-registration-kept carried out in each location registration area 1010. Even if many mobiles advance into the non-location registration area 1011 by this for a short time, further, when it returns to the location registration area 1010 which can prevent the increment in location registration traffic and where

this mobile comes out of the non-location registration area 1011 after that, and location registration of this mobile is carried out again, there is no need of newly performing location registration, and it becomes possible to prevent the increment in location registration traffic.

[0087] The configuration of the migration communication system concerning the example of the 2nd invention of claim 4 is the same as the configuration of the migration communication system concerning the example of invention of above-mentioned claim 3 shown in the block diagram of drawing 20.

[0088] Next, actuation of the call method in the migration communication system constituted as mentioned above is explained. The case where the mobile by which location registration is carried out to the location registration area A1010 is called is explained. Since the location registration method of the first invention is used for this migration communication system as a location registration method, the mobile by which location registration is carried out to the location registration area A1010 may exist in the inside of the location registration area A1010, or the non-location registration area 1011. So, in case this mobile is called, in at least one or more wireless zones 1011 in the location registration area A1010, it calls first, and if not connectable with this mobile between fixed time amount defined beforehand, it calls in at least one or more wireless zones 1111 in the non-location registration area 1011. It is possible for this to decrease call traffic as compared with the approach of location registration traffic decreasing and making the location registration area A1010 and non-location registration area the same location registration area as compared with the approach of making non-location registration area 1011 one location registration area.

[0089] Drawing 22 is the block diagram showing the configuration of the migration communication system concerning the example of the 1st application of the 2nd invention. The migration communication system of this example is constituted including at least one or more location registration area 1010. As the location registration area 1010 is shown in the block diagram of drawing 21 (A), it is constituted including at least one or more wireless zones 1101, and communication service is offered to the mobile in this wireless zone 1101 by the base transceiver station 1102 which forms this wireless zone 1101.

[0090] Next, actuation of the location registration method in the migration communication system constituted as mentioned above is explained. It comes out of the location registration area B1010, and the mobile by which location registration was carried out to the location registration area A1010 is explained. The paging area which performs the call to this mobile is equal to the location registration area A1010 until fixed time amount defined beforehand passes, after location registration of this mobile is carried out to the location registration area A1010. After this fixed time amount passes, the paging area to this mobile is changed into the short-range paging area 1014 which consists of a small number of at least one or more wireless zones 1101 from the location registration area A1010 including the wireless zone 1101 where this mobile exists. a call of especially as opposed to [ by this, when the mobile has stopped at one location registration area over long duration, the paging area to this mobile will consist of a small number of wireless zones more, and ] this mobile -- \*\* -- in being frequently, it becomes possible to decrease the call traffic to this mobile sharply.

[0091] Drawing 23 is the block diagram showing the configuration of the migration communication system concerning the example of the 2nd application of the 2nd invention. The migration communication system of this example is constituted including at least one or more location registration area 1010. As the location registration area 1010 is shown in the block diagram of drawing 21 (A), it is constituted including at least one or more wireless zones 1101, and communication service is offered to the mobile in this wireless zone 1101 by the base transceiver

station 1102 which forms this wireless zone 1101.

[0092] Next, actuation of the location registration method in the migration communication system constituted as mentioned above is explained. Since the mobile came out of the location registration area B1010, location registration was carried out to the location registration area A1010 and location registration was not performed beyond fixed time amount, paging area is changed into the short-range paging area A15 by the 3rd location registration method. When the paging area to this mobile is not changed after that beyond fixed time amount as which this mobile was determined beforehand, paging area is changed into the short-range paging area B1015 which consists of a small number of at least one or more wireless zones 1101 from the short-range paging area A1015 including the wireless zone 1101 where this mobile exists. When the paging area to this mobile furthermore is not changed beyond fixed time amount, the paging area to this mobile is changed into the short-range paging area which consists of a small number of at least one or more wireless zones further including the wireless zone 1101 where this mobile exists. Modification of the above paging area can be carried out if needed until paging area comes to consist of only wireless zones 1101. When the paging area to this mobile will consist of a small number of wireless zones gradually and has the call especially to this mobile frequently, it becomes possible to decrease the call traffic to this mobile of it sharply, so that the time amount to which the mobile has stopped at one location registration area turns into long duration by this.

[0093] Drawing 24 is the block diagram showing the configuration of the migration communication system concerning the example of the 2nd invention. The migration communication system of this example is constituted including at least one or more location registration area 1010. As the location registration area 1010 is shown in the block diagram of drawing 2 (A), it is constituted including at least one or more wireless zones 1101, and communication service is offered to the mobile in this wireless zone 1101 by the base transceiver station 1102 which forms this wireless zone 1101.

[0094] Next, actuation of the call method in the migration communication system constituted as mentioned above is explained. Since the mobile came out of the location registration area B1010, location registration was carried out to the location registration area A1010, and location registration was not performed beyond fixed time amount and also long duration paging area was not changed, the paging area to this mobile is changed by the location registration method of the 3rd invention, and the location registration method of the 4th invention several times, and the case where it is the short-range paging area 1010 is explained. In case this mobile is called, in at least one or more wireless zones 1101 in this short-range paging area 1010, this mobile is called first. Here, when it cannot connect within fixed time amount defined beforehand, this mobile is called in at least one or more wireless zones 1101 which are not included among the wireless zones 1101 in the location registration area A1010 in this short-range paging area 1016. It enables this to decrease the call traffic to the mobile which has stopped in the location registration area of one long duration.

[0095] Drawing 27 (a) and drawing 27 (b) are the block diagrams showing the configuration of the migration communication system concerning the example of the 3rd application of the 2nd invention. The migration communication system of this example is constituted including at least one or more location registration area 1021. Moreover, the location registration area 1021 is constituted including at least one or more wireless zones 1031, and communication service is offered to the mobile 1040 in this wireless zone 1031 by the base transceiver station 1035 which forms this wireless zone 1031.

[0096] next, as an example of actuation of the call method in the migration communication system constituted as mentioned above The paging area of a mobile is set as the wireless zone 1031 which

exists at the termination time of the call of this mobile 1040. When this mobile 1040 does not perform new location registration but carries out a call in to this mobile 1040 It calls only in this wireless zone 1031, and from this mobile 1040, when there is no response, the method called in the wireless zone 1031 in the location registration area 1021 where location registration of these mobiles 1040 other than this wireless zone 1031 is carried out is explained.

[0097] Here, it comes out of location registration area 1021B, and the mobile 1040 by which location registration was carried out to location registration area 1021A is explained. Call origination or when it carries out a call in and this mobile 1040 exists [ this call origination or the call in of this mobile 1040 ] in wireless zone 1031D in this location registration area 1021A, after location registration of this mobile 1040 is carried out to location registration area 1021A, and this mobile 1040 is completed, the paging area of this mobile 1040 is set as this wireless zone 1031D by paging area short range-ization. As the following call, if a call in is in this mobile 1040, this mobile 1040 will be called only by this wireless zone 1031D. When this mobile 1040 has stopped at this wireless zone 1031D, it is possible to connect a call in to this mobile 1040 by this call.

[0098] When this mobile 1040 moves to other wireless zones 1031 from this wireless zone 1031D, this mobile 1040 is called in wireless zones 1031 other than this wireless zone 1031D in this location registration area 1021A to which location registration of this mobile 1040 is carried out. When this mobile 1040 is moving to other wireless zones 1031 from this wireless zone 1031D by this call, it is possible to connect a call in to this mobile 1040 by this call.

[0099] By the above actuation, a mobile stands it still in one wireless zone, and call traffic decreases as compared with the call method with which this mobile calls by the paging area of this mobile serving as only this wireless zone in all the wireless zones in location registration area call origination or when a call in is carried out. Moreover, in case this mobile moves to other wireless zones from this wireless zone, it is not generated but, in such a case, a call in is possible for location registration traffic to this mobile.

[0100] Moreover, when the time amount which has set the paging area of this mobile 1040 as wireless zone 1031D by the above working paging area short range-ization exceeds a certain defined value, it is also possible to set [ rather than ] paging area as many wireless zones 1031 including wireless zone 1031D. It is possible not to make the delay in the case of connection of the call in by being able to decrease call traffic and calling twice also to the mobile 1040 with large mobility by such actuation, as compared with the approach of calling in all the wireless zones 1031 in location registration area 1021A, also when a mobile moves to other wireless zones 1031 from wireless zone 1031D increase not much.

[0101] Furthermore, it is also possible to perform short range-ization of paging area according to the demand from a mobile 1040. For example, a mobile 1040 measures this mobility own [ mobile 1040 ], and if it is below the value as which this mobility was determined, this mobile 1040 will require short range-ization of paging area via a base transceiver station 1035 at the time of termination of a call. If it is beyond the value as which this mobility was determined, short range-ization of paging area will not be required. Only the paging area of the mobile which required short range-ization of paging area performs short range-ization, and short-range-izes paging area in the wireless zone 1031 which exists at the time of termination of a call.

[0102] Since only paging area of a mobile with little mobility is short-range-ized by this and the paging area of a mobile with large mobility is set as location registration area, it is possible to decrease the call traffic to a mobile with little mobility, and to be able to perform connection of a call in in one call to a mobile with large mobility, and not to make the delay at the time of being connection of a call in increase not much.

[0103] Drawing 28 (a) and drawing 28 (b) are the block diagrams showing the configuration of the

migration communication system concerning the example of the 4th application of the 2nd invention. The migration communication system of this example is constituted including at least one or more location registration area 1051. Moreover, the location registration area 1051 is constituted including at least one or more wireless zones 1061, and communication service is offered to the mobile 1070 in this wireless zone 1061 by the base transceiver station 1065 which forms this non-zone 1061.

[0104] next, as an example of actuation of the call method in the migration communication system constituted as mentioned above The wireless zone 1061 which exists the paging area of a mobile at the termination time of the call of this mobile 1070 is included. It is set as the short-range paging area 1055 where this mobile 1070 is narrower than the location registration area 1051 by which location registration is carried out. When this mobile 1070 does not perform new location registration but carries out a call in to this mobile 1070 It calls only in this short-range paging area 1055, and from this mobile 1070, when there is no response, the method called in the wireless zone 1061 in the location registration area 1051 where location registration of these mobiles 1070 other than this short-range paging area 1055 is carried out is explained.

[0105] Here, it comes out of location registration area 1051B, and the mobile 1070 by which location registration was carried out to location registration area 1051A is explained. Call origination or when it carries out a call in and this mobile 1070 exists [ this call origination or the call in of this mobile 1070 ] in wireless zone 1061C in this location registration area 1051A, after location registration of this mobile 1070 is carried out to location registration area 1051A, and this mobile 1070 is completed, the paging area of this mobile 1070 is set as short-range paging area 1055A by paging area short range-ization. As the following call, if a call in is in this mobile 1070, this mobile 1070 will be called in the wireless zone 1061 in this short-range paging area 1055A.

[0106] When this mobile 1070 has stopped in this short-range paging area 1055A, it is possible to connect a call in to this mobile 1070 by this call. When this mobile 1070 moves out of this short-range paging area 1055A from the inside of this short-range paging area 1055A, this mobile 1070 is called in wireless zones 1061 other than this short-range paging area 1055A in this location registration area 1051A to which location registration of this mobile 1070 is carried out. Also when this mobile 1070 moves out of this short-range paging area 1055A by this call, it is possible to connect a call in to this mobile 1070 by this call.

[0107] Moreover, it is also possible for paging area to be short-range-ized by the above actuation, and to short-range-ize further paging area of a mobile where paging area is set as the short-range paging area 1055. Location registration is carried out to location registration area 1051A, and the mobile 1070 by which paging area was short-range-ized by short-range paging area 1055A is explained.

[0108] Call origination or when it carries out a call in and this mobile 1070 exists [ this call origination of this mobile 1070 ] in wireless zone 1061E in short-range paging area 1055A, after this mobile 1070 is completed, the paging area of this mobile 1070 is set as short-range paging area 1055B narrower than short-range paging area 1055A including this wireless zone 1061E by paging area short range-ization.

[0109] As the following call, if a call in is in this mobile 1070, this mobile 1070 will be called in the wireless zone 1061 in this short-range paging area 1055B. When this mobile 1070 has stopped in this short-range paging area 1055B, it is possible to connect a call in to this mobile 1070 by this call. When this mobile 1070 moves out of this short-range paging area 1055B from the inside of this short-range paging area 1055B, this mobile 1070 is called in wireless zones 1061 other than this short-range paging area 1055B in this location registration area 1051B to which location registration of this mobile 1070 is carried out. Also when this mobile 1070 moves out of this

short-range paging area 1055B by this call, it is possible to connect a call in to this mobile 1070 by this call.

[0110] By the above actuation, I stay in the field where a mobile is narrow. This mobile call origination or when a call in is carried out The paging area of this mobile turns into short-range paging area narrower than location registration area. Since it calls as compared with the call method which calls in all the wireless zones in location registration area, and traffic decreases and paging area does not become small for a short time, Possibility that connection of a call in can be performed in one call to a mobile with large mobility is high, and it is possible not to make the delay at the time of being connection of a call in increase not much.

[0111] Moreover, in case a mobile moves out of short-range paging area, it is not generated but, in such a case, a call in is possible for location registration traffic to this mobile. Furthermore, the further reduction of call traffic is possible for the paging area of a mobile with the long residence time in a narrow field by short-range-izing, whenever a call occurs.

[0112] Moreover, when the time amount which has set the paging area of this mobile 1040 as the short-range paging area 1055 by the above working paging area short range-ization exceeds a certain defined value, it is also possible to set paging area as the paging area which consists of many wireless zones 1031 from the short-range paging area 1055. It is possible not to make the delay in the case of connection of the call in by decreasing call traffic and calling twice also to the mobile 1040 with large mobility by such actuation, also when a mobile moves out of the short-range paging area 1055 increase not much.

[0113] Furthermore, it is also possible to perform short range-ization of paging area according to the demand from a mobile 1070. For example, a mobile 1070 measures this mobility own [ mobile 1070 ], and if it is below the value as which this mobility was determined, this mobile 1070 will require short range-ization of paging area via a base transceiver station 1065 at the time of termination of a call. If it is beyond the value as which this mobility was determined, short range-ization of paging area will not be required. Only the paging area of the mobile which required short range-ization of paging area performs short range-ization, and is short-range-ized to short-range paging area including the wireless zone 1061 which exists paging area at the time of termination of a call. Since only paging area of a mobile with little mobility is short-range-ized and the paging area of a mobile with large mobility is set as large paging area by this, it is possible for you to decrease call traffic and for the delay in the case of a call not to make it increase to coincidence not much, either.

[0114]

[Effect of the Invention] The migration communication system of the 1st invention and its control system become that it is possible to realize improvement in service of latency-time compaction of traffic machine utilization time etc. and improvement in service of decline in the rate of circuit convergence of mobile communication etc. by performing actuation which judged synthetically the operation management information of the traffic machine which can predict the course of migration, and the management information of the circuit of migration communication system.

[0115] The traffic which called with location registration traffic and doubled traffic with the call method of the 2nd invention can be decreased, and there is effectiveness [ mobiles / more ] that it can hold in migration communication system.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the block diagram of the 1st example of the migration communication system of the 1st invention.

[Drawing 2] It is the block diagram of the 2nd example of the migration communication system of the 1st invention.

[Drawing 3] It is the block diagram of the 3rd example of the migration communication system of the 1st invention.

[Drawing 4] It is the block diagram of the 4th example of the migration communication system of the 1st invention.

[Drawing 5] It is the explanatory view showing the actuation on the flat surface of the migration communication system of drawing 4.

[Drawing 6] It is the block diagram of the 5th example of the migration communication system of the 1st invention.

[Drawing 7] It is the block diagram of the 6th example of the migration communication system of the 1st invention.

[Drawing 8] It is the block diagram of the 7th example of the migration communication system of the 1st invention.

[Drawing 9] It is the block diagram of the 8th example of the migration communication system of the 1st invention, and the 9th example.

[Drawing 10] It is the block diagram of the 10th example of the migration communication system of the 1st invention, the 11th example, and the 12th example.

[Drawing 11] It is the block diagram of the 13th example of the migration communication system of the 1st invention.

[Drawing 12] It is the block diagram of the 14th example of the migration communication system of the 1st invention, and the 20th example.

[Drawing 13] It is the block diagram of the 15th example of the migration communications control method of the 1st invention.

[Drawing 14] It is the explanatory view showing actuation of the 15th and 16th examples of the migration communications control method of the 1st invention.

[Drawing 15] It is the block diagram of the 17th example of the migration communication system of the 1st invention.

[Drawing 16] It is the explanatory view showing the location registration area of the 17th example of the migration communication system of the 1st invention.

[Drawing 17] It is the explanatory view showing the location registration area of the 18th example of the migration communication system of the 1st invention, and the 19th example.

[Drawing 18] It is the explanatory view showing the location registration area of the 20th example of the migration communication system of the 1st invention.

[Drawing 19] It is the block diagram of the 21st example of the migration communication system of the 1st invention, and the 22nd example.

[Drawing 20] It is the block diagram showing the 2nd configuration of the migration communication system of the 1st and 2nd examples of invention.

[Drawing 21] It is the block diagram showing the configuration of location registration area and non-location registration area.

[Drawing 22] It is the block diagram showing the configuration of the migration communication system of the 3rd example of the 2nd invention.

[Drawing 23] It is the block diagram showing the configuration of the migration communication system of the 4th example of the 2nd invention.

[Drawing 24] It is the block diagram showing the configuration of the migration communication system of the 5th example of the 2nd invention.

[Drawing 25] It is drawing showing an example of the conventional migration communication



system.

[Drawing 26] It is drawing showing another example of the conventional migration communication system.

[Drawing 27] It is the block diagram showing the configuration of the migration communication system of the 6th example of the 2nd invention.

[Drawing 28] It is the block diagram showing the configuration of the migration communication system of the 7th example of the 2nd invention.

[Description of Notations]

- 1 -- Operation Management Department
- 2 -- Line control section
- 3 -- Information transmission way
- 4 -- Traffic machine
- 5 32 -- Operation control section
- 6 Mechanical Component
- 7, 132, 133, 151, 1102, 1112 Base transceiver station
- 8,136 -- Migration communication terminal
- 9,137 -- Positional information database
- 11 -- Mobile communication user
- 12 -- Traffic machine bus stop
- 31 -- Elevator operation Management Department
- 33 -- Loop wheel machine
- 34,181,182,191,192 -- Cage
- 35 -- Hole
- 36 -- Destination story registration equipment
- 37 -- Hoistway
- 41, 51, 91, 143, 152, 1101, 1111 -- Wireless zone
- 52 72 -- Course of a traffic machine
- 61 -- Migration equipment
- 92 -- A mobile communication user's arrival story
- 121,211 -- Each story floor
- 131 -- Switching node
- 134, 135, 1011 -- Location registration area
- 141,142 -- Positional information update position
- 11 1111 -- Non-location registration area
- 1114, 1115, 1116 -- Short-range paging area
- 1010, 1021, 1051 -- Location registration area
- 1055 -- Short-range paging area
- 1031 1061 -- Wireless zone
- 1035 1065 -- Base transceiver station
- 1040 1070 -- Mobile

\* NOTICES \*

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1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.\*\*\*\* shows the word which can not be translated.

3.In the drawings, any words are not translated.